

FIGURE 1

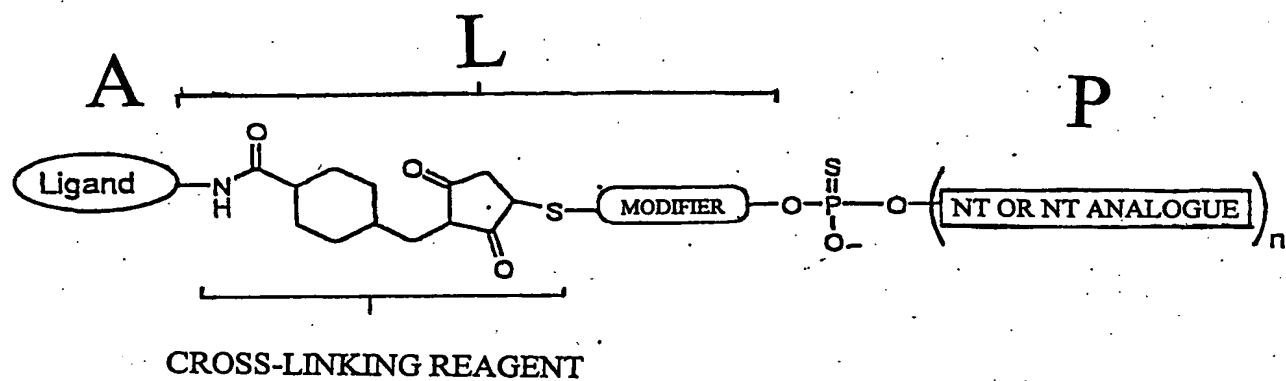


FIGURE 2

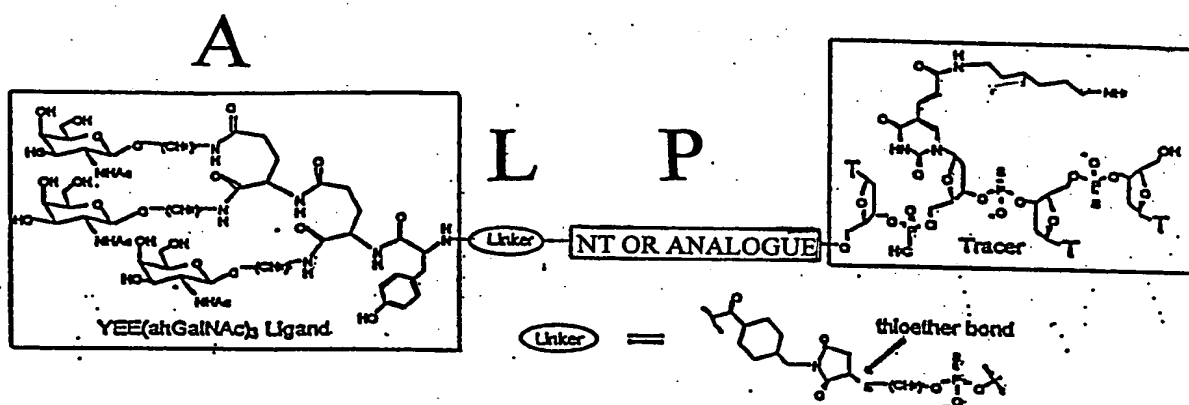
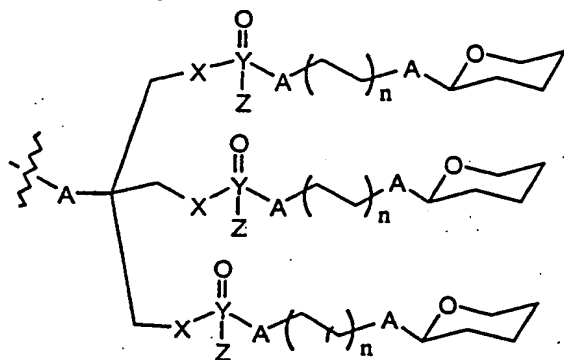


FIGURE 3

Tri-antennary



X = NH, O, S

Y = P or S

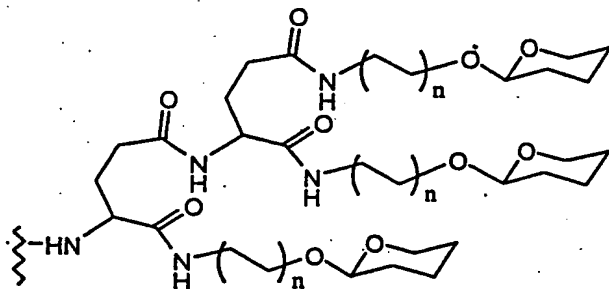
Z = NH-alkyl, NH₂, O⁻, S⁻

A = NH, CH₂, O, S

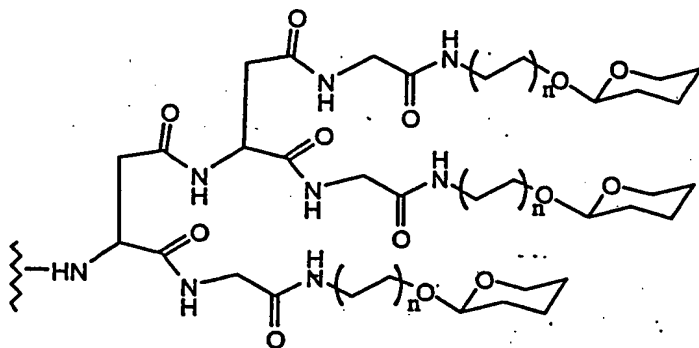
n = 2 to 17 2-carbon units

Carbohydrate =

tris((heteroatom)methyl)-[heteroatom]methane



diglutamyl



diasparatyl

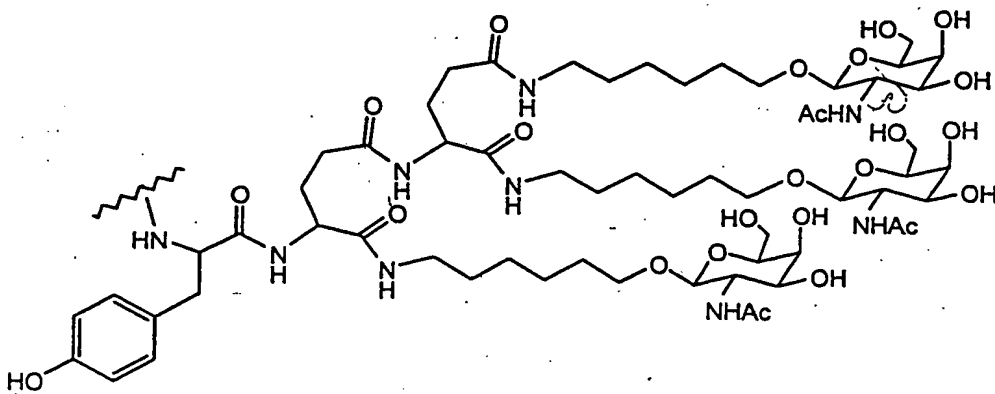
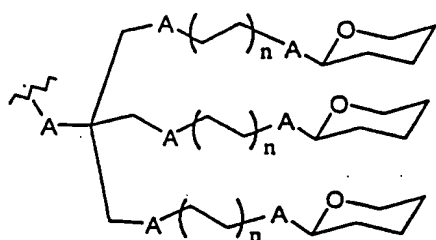


FIGURE 3 (CONTINUED)



tris((heteroatom)methyl)-[heteroatom]methane
examples

tris(hydroxymethyl)aminomethane-based

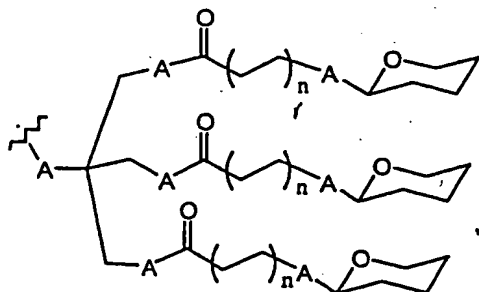
[A= O]

tris(aminomethyl)aminomethane-based

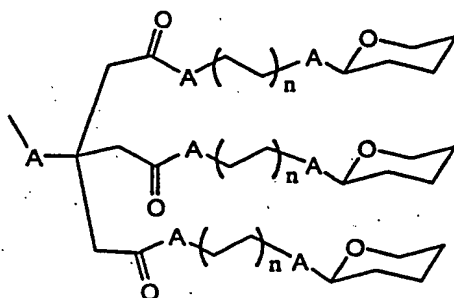
[A= NH]

tris(thiomethyl)aminomethane-based

[A= S]

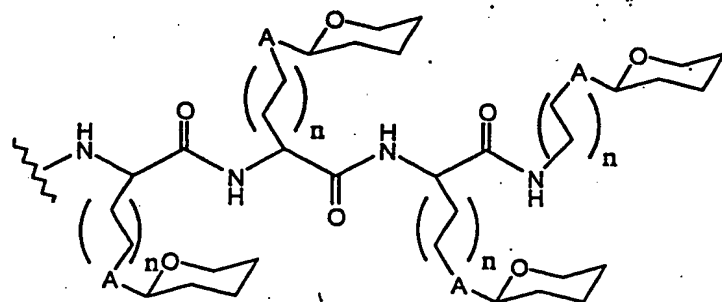


tris(aminomethyl)-[heteroatom]methane



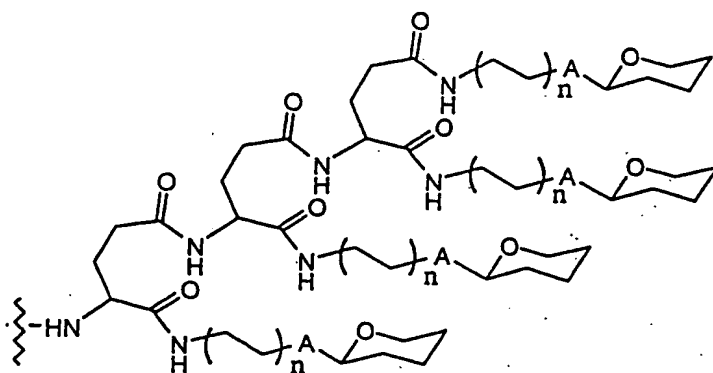
tris(acetoxy)-[heteroatom]methane

Tetra-antennary



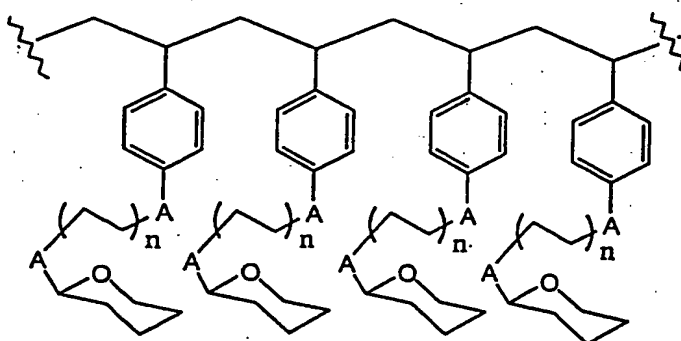
oligo(lysine)

FIGURE 3 (CONTINUED)

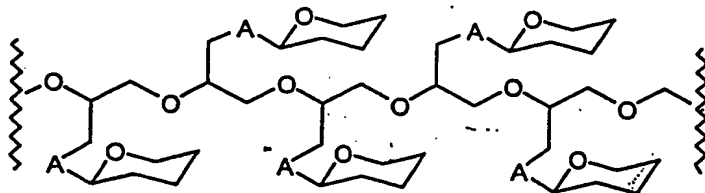


oligopeptide-based
(i.e. triglutamyl)

Multi-antennary



substituted
polystyrene-based



substituted
poly(ethyleneglycol)

FIGURE 4

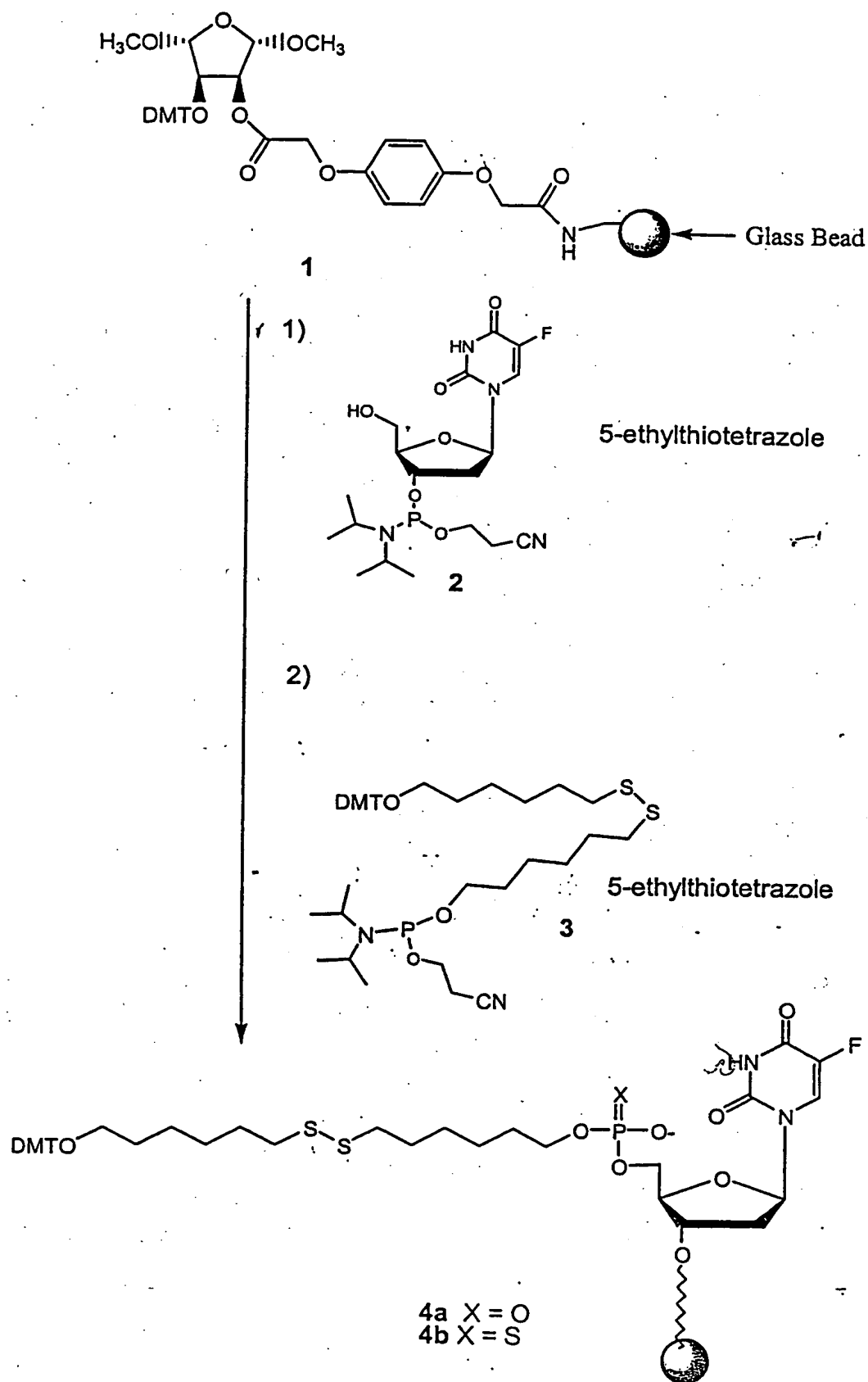
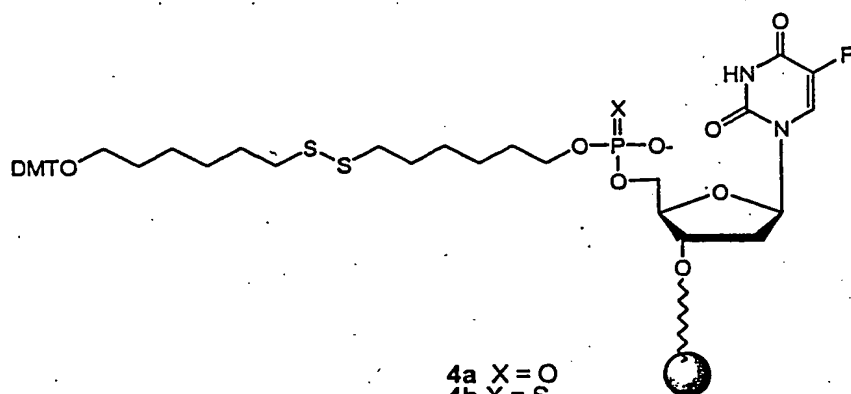
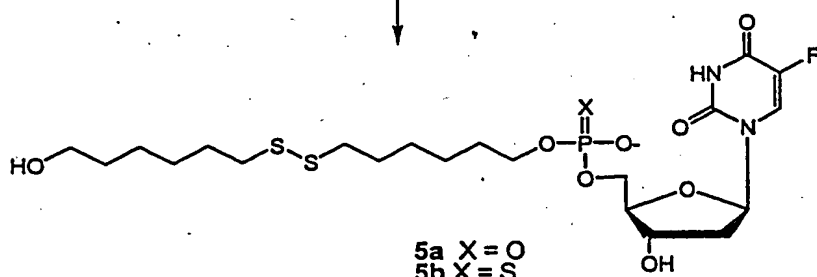


FIGURE 5



C18 SepPak™
1% CF₃COOH



DTT

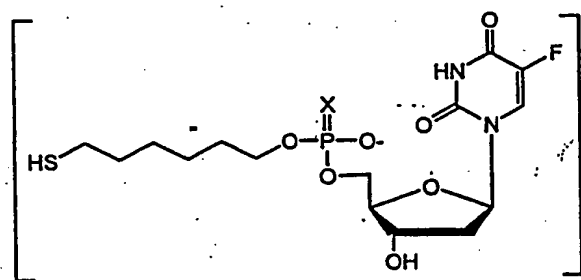


FIGURE 6

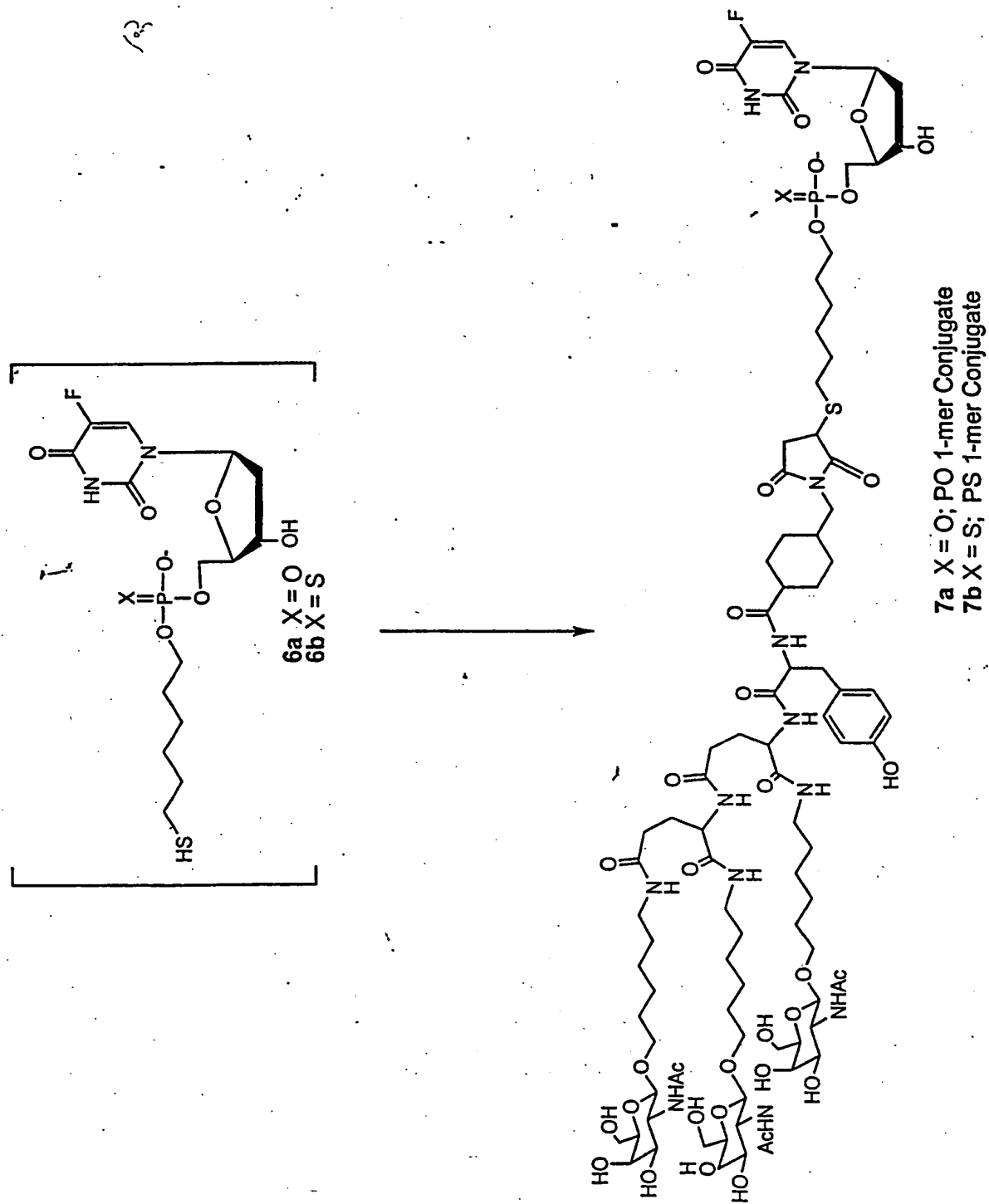


FIGURE 7

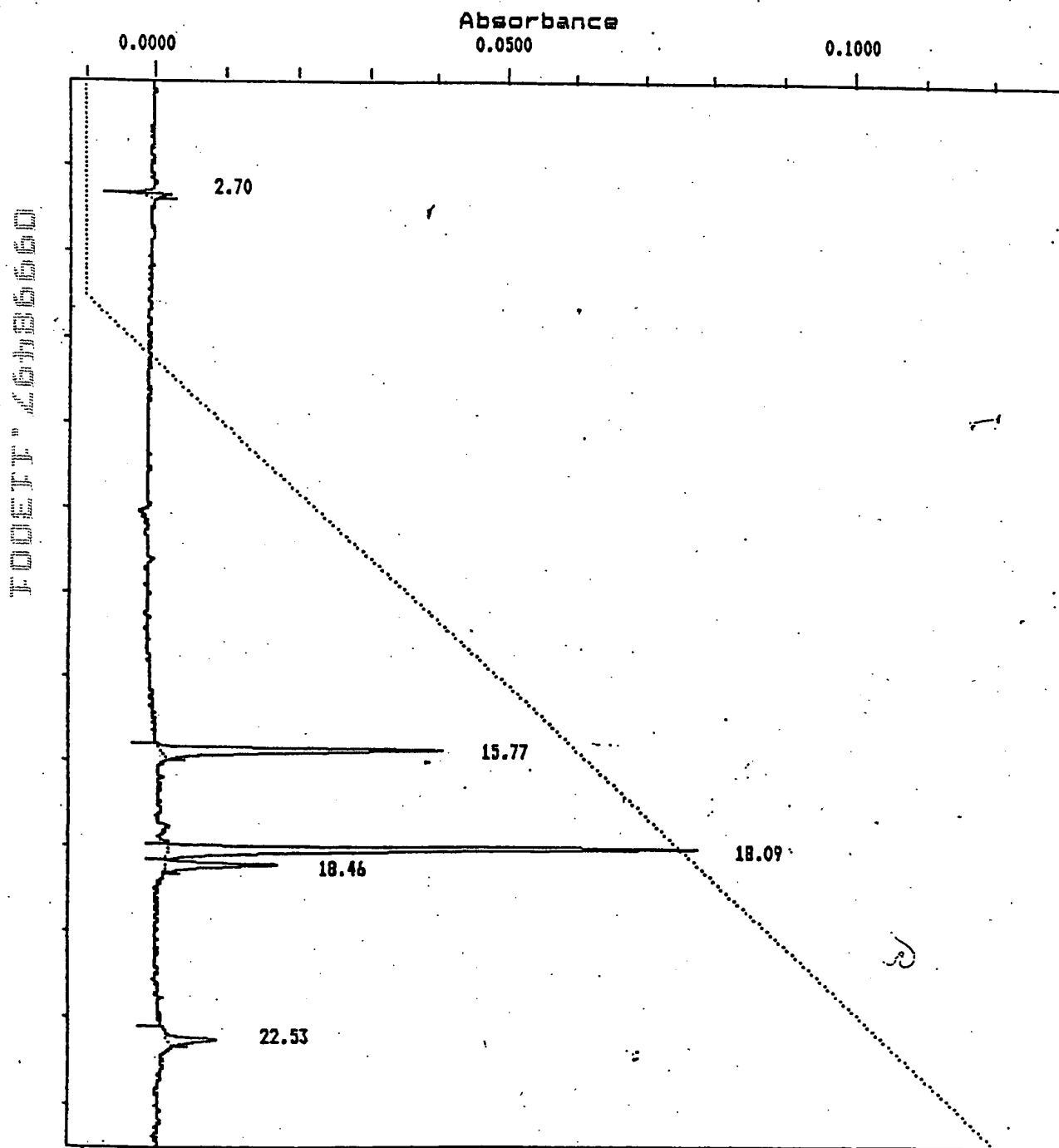
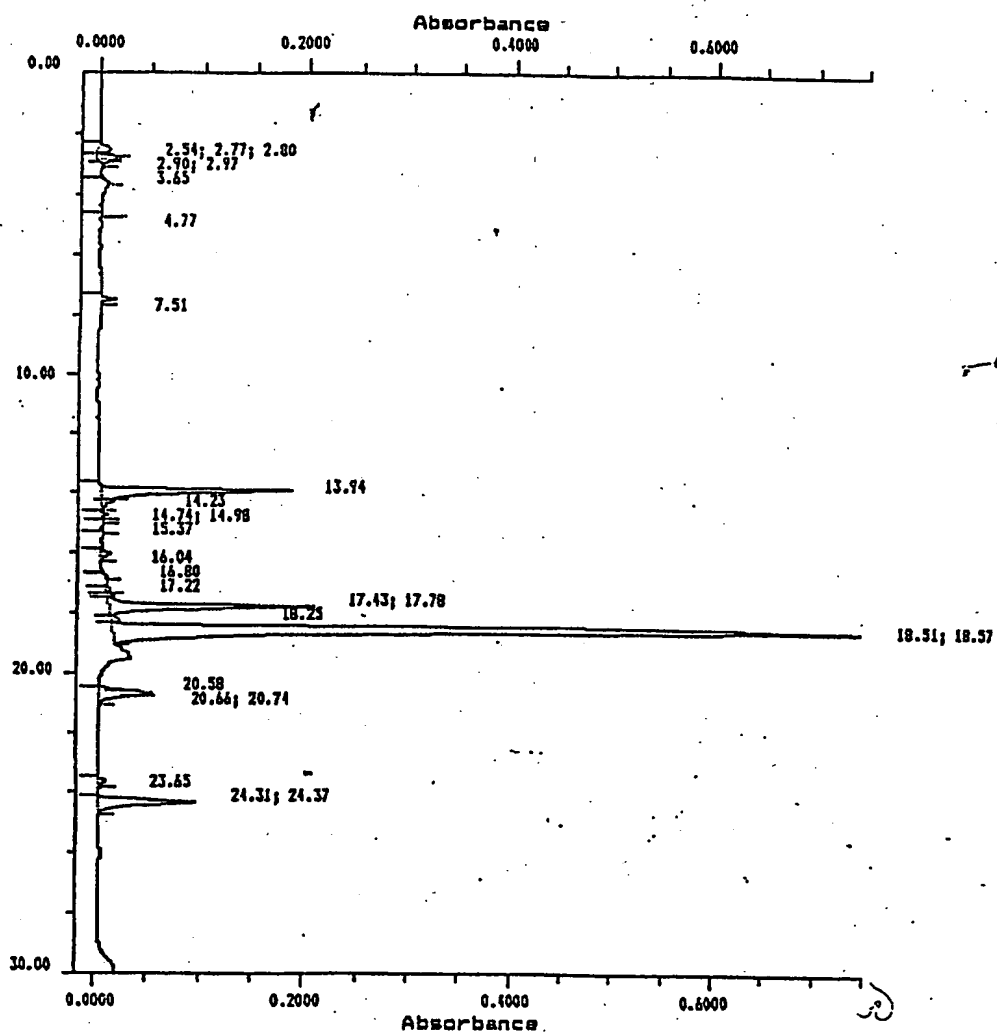
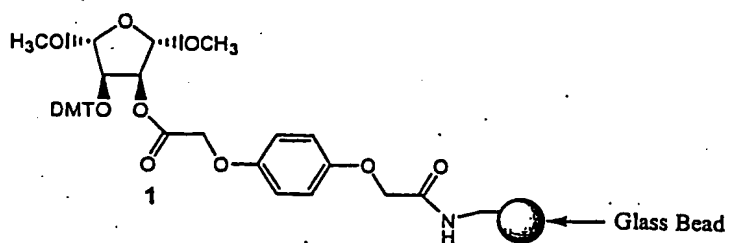


FIGURE 8

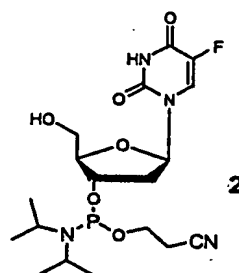


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FIGURE 9

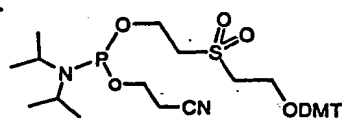


1)a.



b. Cap A/Cap B
 c. Beaucage Reagent
 d. Cl_2CHCOOH

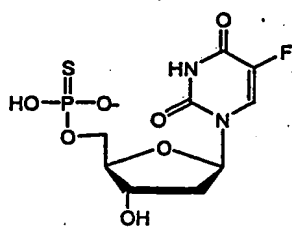
2) a.



b. Cap A/Cap B
 c. Beaucage Reagent
 d. Cl_2CHCOOH

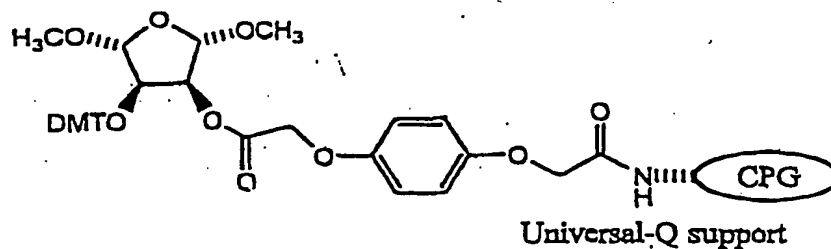
3) Cl_2CHCOOH

4) 0.5 M NaOH in 50% $\text{CH}_3\text{OH}/\text{H}_2\text{O}$, 1.5 h

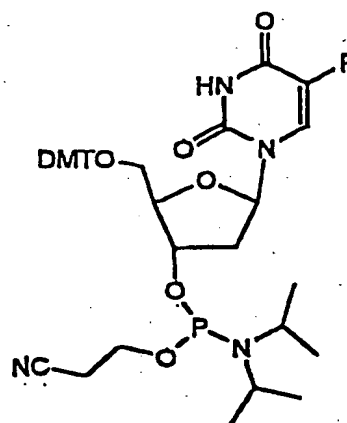


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FIGURE 11



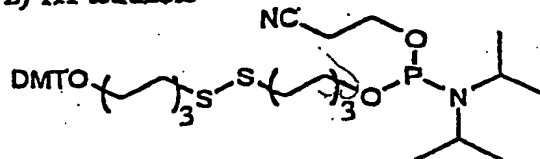
- 1) H⁺
- 2) 1H-tetrazole



- 3) Oxidation - Beaucage Reagent
- 4) Capping - Acetic anhydride, 2,6-Lutidine
Tetrahydrofuran
- 5) Repeat

DMTO-FpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsF-Q

- 1) H⁺
- 2) 1H-tetrazole



- 3) Oxidation - Beaucage Reagent
- 4) Capping - Acetic anhydride, 2,6-Lutidine
Tetrahydrofuran

- 5) H⁺
- 6) 0.1 M NaOH in 50% CH₃OH/H₂O, 1 h, 25°C
- 7) C₁₈ SepPak (Waters Corp.)

HO-(CH₂)₆-SS-(CH₂)₆-ps-FpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsFpsF

FIGURE 12

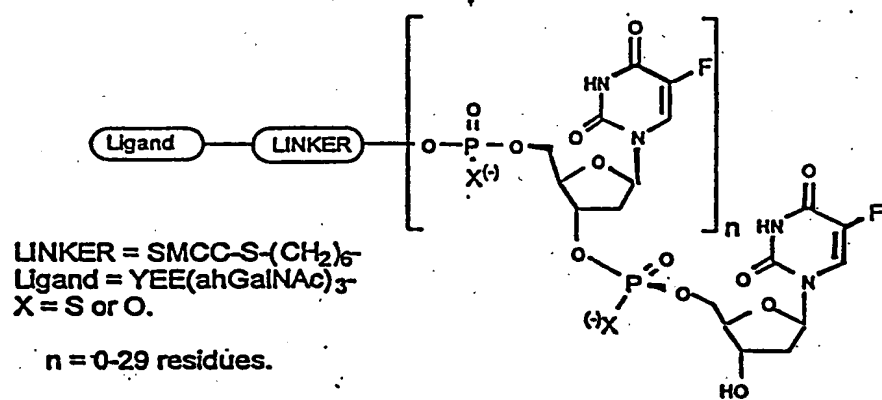
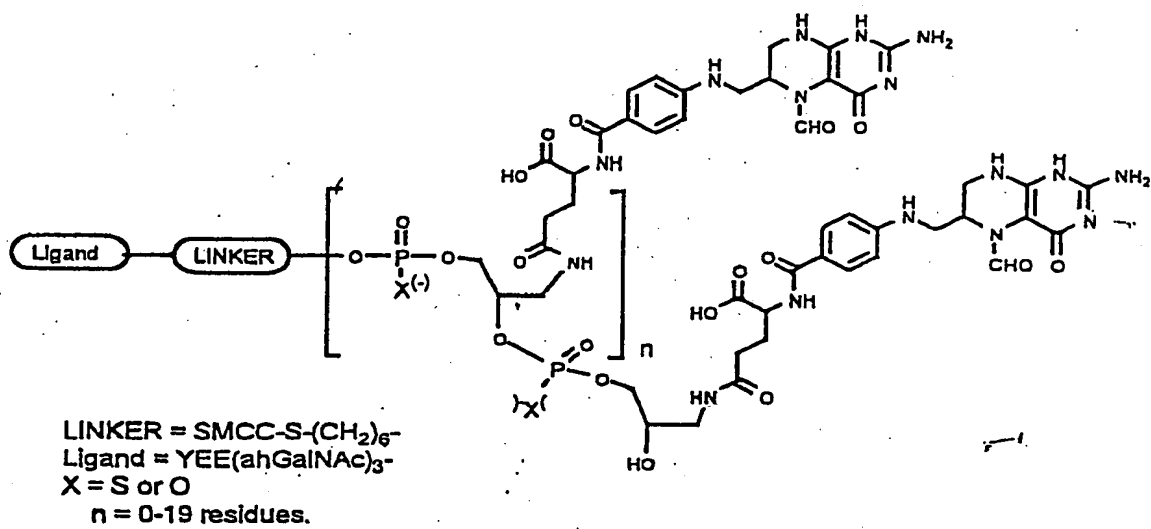


FIGURE 13



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